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# SCHOOL LUNCHES

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## FARMERS' BULLETIN 712

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**G**ROWING CHILDREN have certain special needs in the way of food. Like grown people, they must be supplied with that which is necessary for health and strength, but unlike them, they must be given also that which is necessary for development.

Even when children eat all of their meals at home, it is no easy matter to see that they are properly fed, and when they eat part of their meals at school, the difficulty is far greater. This is not because healthfulness and cleanliness are more important in this meal than in the other meals of the day, but because they are harder to secure. It is not easy to make food attractive and to keep it clean when it must be packed and carried in a lunch basket. Nor is it easy to prepare meals in places like schools which are not specially fitted for the purpose.

The midday meal of school children offers, therefore, to parents and also to teachers certain practical problems, and it is these problems that are considered in this bulletin.

# SCHOOL LUNCHES.<sup>1</sup>

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## PURPOSE OF THIS BULLETIN.

THE daily meals of school children must contain all the materials needed for health and for growth. Some of these can best be supplied by milk, some by cereals, and some by other common food materials. Parents and teachers, therefore, and others who are responsible for the proper feeding of children, must know not only what their bodies need but also something about the special uses of different foods.

All this is true, of course, of the breakfast and the supper as well as of the luncheon. And yet the midday meal of school children often presents certain special practical problems and demands particular care and attention. Sometimes it must be packed and carried long distances and unusual care is needed to make it attractive and to keep it wholesome. Sometimes it must be prepared in the school-room or other place where there are few conveniences for the purpose. The choice of dishes is, under these circumstances, limited, and special care must be taken to secure variety.

In spite of all these facts there are some disadvantages about studying this one meal apart from the other two. The three taken together must supply a large number of materials. It may not be

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<sup>1</sup> Prepared under the direction of C. F. Langworthy, Chief, Office of Home Economics.

convenient to provide all of these at one meal, and those which are left out of one meal must be supplied at another. Breakfast, dinner or lunch, and supper should, therefore, usually be thought of together as necessary to the making of a complete day's ration.

On the other hand, it is particularly difficult to live up to one's ideals in a meal which is almost always hurried and which must often be prepared in one place and served in another. The mid-day meal of school children on days when school is in session has, therefore, problems of its own and may well be occasionally discussed, as it is in this bulletin, apart from all other meals.

There are some places, small towns, for example, where dwelling houses and schools are so close together that pupils can easily go home at noon. In these cases the thought or care necessary for the noonday meal is along the same lines as that given to breakfast and supper. There are other places, however, and these include large cities as well as rural districts, where children are obliged, because of distance, to remain at school over the noon hour. Under these circumstances most children carry their lunches. Some, however, particularly in cities, are given money with which to buy food. This practice is, of course, open to dangers, for the money is too often spent in shops or at pushcarts over which those who are most interested in the children's welfare have little control. To insure that food is prepared under proper conditions, lunch counters or lunch rooms have been established in many school buildings, where pupils may buy full lunches or certain dishes with which to supplement food brought from home. There are schools, too, where the task of preparing lunches, or at least one or two of the dishes to be served at noon, is given to cooking classes as a laboratory or practice exercise.

Any discussion of lunches for school children must, therefore, take into account (1) the children who go home at midday, (2) those who carry their lunches, (3) those who buy them at shops or at the school, (4) those who are supplied by the school through the cooking classes, and (5) those who carry part of each day's lunch and depend on being able to buy something at or near the school to add to what they carry.

### FOODS FOR CHILDREN.

The essentials of the diet of all normal children are, of course, the same—namely, an abundance of simple foods carefully prepared and of sufficient variety to provide for activity, which in healthy children is almost ceaseless during waking hours, and for development into healthy manhood and womanhood. For this reason the general subject of food for children will be discussed before the special problems of the school lunch.

### THE PLACE OF BREAD IN THE DIET.

One of the chief practical food problems, whether children or grown people are concerned, is how to get good, wholesome, clean bread. It has been shown that cereals provide nearly one-third by weight of all the food eaten by the American people<sup>1</sup> and that they supply nearly half of the protein (commonly referred to as tissue-building material) and nearly two-thirds of the fuel or energy. The greater part of these cereals is, of course, served in the form of bread of one kind or another. The quality of the bread which is eaten is, therefore, an extremely important consideration.

It is not possible within the limits of this bulletin to give directions for making bread, nor is it necessary, for recipes can be obtained from any good general cookbook. All that can be done here is to speak of the qualities of good bread. These are perhaps most clearly and concisely stated in the score cards commonly used in bread-judging contests at State fairs, farmers' institutes, and elsewhere. Such cards are designed especially for judging loaves of wheat bread, but with a little modification they can be used also for breads made wholly or partly of other cereals (corn, rye, oatmeal, etc.) and for bread in other forms, such as biscuits and rolls. In all cases the characteristics of the crust and the crumb (the inside of the loaf), the lightness, and the flavor are taken into consideration.<sup>2</sup>

The crust should be crisp and deep (indicating thorough baking), but not hard or burned. The crumb should be elastic; that is, it should be capable of being compressed by slight pressure, but should spring back to its original form when such pressure is removed. If the dough is made too stiff, the crumb can not easily be compressed, and if too thin or if insufficiently baked, the crumb is soggy and inelastic. A crumb which is neither too hard nor too soft can easily be broken up in the mouth during the process of chewing and will neither form a sticky mass nor be too dry to taste good.

Lightness is an important feature of quality. It depends on the size of the loaf as compared with its weight, a point which experienced bread makers can usually judge by lifting a loaf and by noting if the shape is symmetrical and the crust unbroken. When the loaf is cut the air cells should be found evenly distributed, of about the same size throughout, and nearly round in shape. Cells which are higher than they are wide show that the bread has risen too much and is likely to be dry or sour. There should, of course, be no close, heavy streaks. In making bread the best results are obtained by letting the loaves double their volume in the pan and by

<sup>1</sup> U. S. Dept. Agr., Office Expt. Stas. Circ. 110 (1912). Food Customs and Diet in American Homes.

<sup>2</sup> Univ. Ill. Bul. 10 (1913), No. 25.

beginning the baking at such temperature that the rising will continue about 10 minutes in the oven.

The flavor of bread, which is determined by taste and odor, is difficult to define, except by saying what it should not involve—sourness and rancidity. The flavor of wheat bread is often described as that of the original wheat as it is obtained by chewing the grains. In like manner, the flavor of other breads should suggest that the original materials were in good condition at the beginning and that they have not undergone any undesirable changes during the process of bread making.

All of these qualities—lightness, good flavor, a crisp and deep crust, and an elastic crumb—can be secured in rolls and biscuits as well as in large loaves. The objection to hot bread is not due to the fact that it is hot (if it were, hot toast would be indigestible, i. e., cause distress), but that it lacks some of the characteristics mentioned above. Large or thick biscuits, whether raised with yeast, baking powder, or soda, are likely, if cooked only a short time, to be soggy on the inside, and this, when it happens, is the objection to them, rather than the fact that they are served hot.

If the diet is limited in kind and quantity, bread made from the so-called whole-grain flours is especially useful; if it is varied and abundant, other foods can supply the nutritive material which characterizes the branny layer of the grain.

The use of different kinds of bread is to be recommended in general, for variety in the diet is pleasing, and this is an easy way to secure it. Sometimes so simple a change as baking the bread in a new form, a twist, for example, instead of a loaf, or cutting bread and butter in a fancy shape with a cookie cutter, will increase a child's relish for it. So, too, will a change of flavor, obtained by adding a few raisins, dried currants, or nut meats.

Cereal mushes and ready-to-eat cereal breakfast foods supply much the same nutrients as bread. In a very general way a half cupful of cooked cereal mush or one cupful of puffed, flaked, or shredded cereal is equal in food value to a good-sized slice of bread (1 ounce).

The above allowance of any one of these cereals with one tablespoon of cream is about equivalent to the slice of bread mentioned (1 ounce) spread with about one-sixth of its weight of butter, a moderate and not unusual allowance. Cereals with cream resemble bread and butter in their nutritive value more closely than cereals with milk do (see p. 7). They do not come so near to being complete foods.

Probably one reason why bread and cereals in other forms make up so large a part of the food of people is because they come near in themselves to fulfilling one of the important requirements of the diet—a right proportion between the nutrients which provide fuel

only and those which can be used for body building. Or, expressing these in terms of the needs of the child, they come near to providing for activity and also for growth. To come near to doing a thing, however, is not to do it, and with bread and butter should be served, as a rule, some of those foods which provide protein in larger proportion as compared with fuel. These foods include milk, meat, fish, poultry, eggs, cheese, dried legumes, such as beans, cowpeas, peas, and peanuts, and some nuts.

Among these protein-rich foods, as they are often called, healthy grown people may choose at will and according to their likes or dislikes, but in the case of children no one of them is thought wholly to take the place of milk.

### MILK AND WAYS OF USING IT.

The value of milk in the diet of the young is due not only to the fact that it contains a large number of nourishing substances in forms in which they can easily be assimilated, but also to the fact that in some way not now fully understood it seems to promote growth and to help the body of the child to make good use of other foods. Milk is exceptionally rich in lime and it is practically impossible to make up a diet containing enough lime for a growing child without using it generously.

While milk should, if possible, have a place in the diet of all growing children, it is not necessary to serve it at every meal, and the lunch can, if this seems desirable, be made an exception. In practice, however, it has been found that such dishes as milk toast, milk soups, and cocoa are often convenient for the lunch at home, while at school they can be prepared more easily than most dishes, because they do not call for an oven or for any but the simplest cooking utensils.

Milk soups, of which there is a great variety, all prepared in about the same way, are important, not only because they can be made a means of serving milk in large quantities but also because they offer a good way to use vegetables, the value of which as food is referred to later in this bulletin. Materials other than vegetables—small amounts of fish or cheese, for example—can also be used for flavoring. These, however, tend to increase the protein rather than to add the nutrients which give vegetables their special usefulness in the diet, a fact which should be kept in mind when bills of fare are being made.

It is unfortunate for those who have charge of the food of children to be tied down to any fixed recipes for milk soups, for if so they are likely to fail to utilize materials at hand, such as those that grow in the home or school garden or those that have been left over from previous meals and are still in good condition. General directions for preparation and also a few recipes will be found on pages 21–23.



Other easily prepared dishes that may be the means of introducing milk into the diet are simple chowders, such as potato or corn chowder, and custards. The breakfast cereals—a large and varied class of foods, valuable in themselves—may be the means of encouraging children to take much milk. All can be served with milk; and the food value of the uncooked varieties can be further increased by using milk instead of water in preparing them. In this way skim milk, which has a higher food value than most people realize and which is too often wasted, can be made to count as nourishment.

#### **OTHER PROTEIN FOODS.**

Other protein-rich foods should be used as well as milk in the diet of all children who have passed babyhood. Eggs are usually the first of these foods given in addition to milk. They contain much iron, an ingredient in which milk (though rich in other kinds of mineral matter, particularly lime) is lacking. Gradually as the child develops, chicken, fish, meat, cheese, dried beans, peas, cowpeas, and other protein-rich foods, may be added. No great quantity is needed, inasmuch as bread and milk come near to supplying all the child's needs. These foods should not be overlooked, however, and in order to prevent this they should be thought of as forming a separate and important group of food materials which are to be drawn upon more and more as the child grows. Ways of introducing them into the diet, particularly into the school lunch, are given later.

#### **THE IMPORTANCE OF GREEN VEGETABLES AND FRUITS IN THE CHILD'S DIET.**

Vegetables and fruits are now considered a necessary part of the diet of the child. The reasons are many, but most of them may be summed up by saying that they furnish material needed to form bone and tissue and to regulate body processes. The mild acids which some of them contain help to prevent constipation; so, too, does the cellulose or fiber, especially when it is raw, though its value for this purpose may have been exaggerated in popular literature. Green vegetables are also a valuable means of introducing into the diet mineral matters, particularly iron, in a form in which the body can utilize them. Even at city prices green vegetables have been shown to be an economical source of iron. Leaf vegetables, like spinach, beet greens, kale, etc., have recently been found to contain some of the growth-promoting substances that are found in milk.

The uses of fruits in the diet are much the same as those of green vegetables, though, unlike most vegetables, they have a considerable percentage of sugar, especially when they are dried, and sugar is a

quickly absorbed fuel food. Like vegetables, they have value because they contribute some of the nitrogen required for tissue building and repair, and some energy. However, they are valuable chiefly because they supply growth-stimulating and body-regulating substances and also mineral matter needed for bone and for many other purposes. The quantity of these materials in fruits and vegetables is small, it is true, but large in comparison with the amount in many other common foods.

Fresh vegetables and fruits must be prepared with care, for there is danger of transmission of disease by means of foods that are served raw. Most people will agree that apples, pears, etc., as picked from the tree in an orchard far enough from the road to escape dust, are clean. If they drop to the ground upon clean grass they may still be eaten without much risk, although there would then be more chance for dirt, with its attendant disease-producing bacteria.

All fresh fruits and vegetables which come from the market should be thoroughly washed in several waters. Most fruits may be safely dipped in boiling water and many can be kept there for several seconds without injuring their flavor. This kills many, if not all, of the bacteria and other organisms that are likely to cling to the fruit. A convenient way to do this is to place the fruit in a wire frying basket. Grapes, apples, pears, peaches, and plums are not injured by this treatment, and unripe strawberries are often improved by it. Large fruits, such as bananas, apples, oranges, and others with unbroken skins may be safely washed with soap.

Dried fruits should be particularly well washed. If they are then put into a warm oven to dry they are likely to absorb the water which clings to them and thus to be softened and improved in taste.

#### DESSERTS AND THEIR SELECTION.

The dessert for any meal usually consists of fruit, either raw or cooked, of sweets, or of pastry. Most children like fruits, raw, cooked, or dried, and so they are very useful for dessert for them. Even here, however, variety should be considered, and the less common uses for fruits are worth noting. For example, in a certain boarding school the children are given daily a food resembling candy, which is made of finely chopped dried fruits and nuts mixed together, rolled out, and cut into squares like caramels. These are very palatable and nutritious and are believed to prevent constipation. (See recipe for Fruit and Nut Confection, on p. 26.)

Pies and other kinds of pastry add much fat to the diet, the amount of fat in many kinds of pie (taking crust and filling together) being more in proportion to weight than in any meat but the very fattest. Most authorities on food believe that it is better

to serve fat to children in the form of butter, milk, cream, egg yolks, or uncooked salad oils than in the form of rich pastry or rich sweets—i. e., desserts that are heavily sweetened and also very fat.

Experience has shown that fruits, fresh or served in simpler forms (baked, stewed, or raw), and simple sweets are better forms of dessert for children than preserves or rich pastry. Sweets may be given in the form of cake (not too rich or it comes in the class of pastry), cookies, sweet sandwiches, simple candy, honey, dried or preserved fruits, maple sugar, and loaf sugar, and in many other ways. Highly flavored and spiced foods should be avoided because they spoil the appetite for simple flavors.

### FOODS CONVENIENTLY GROUPED.

Going back over what has been said about the kinds of foods desirable, the subject may be summed up by saying that the important elements of a child's diet are milk, supplemented at times by other protein-rich foods but never wholly omitted; bread or cereal food in other forms; butter or other foods containing much fat; vegetables and fruits; and sweets. In general, it may be said that the school lunch, like the diet as a whole, should contain representatives of the following groups:

*Groups 1. The protein-rich foods.*—Milk; cheese; meats (except the very fattest); fish; poultry; dried beans, peas, and cowpeas; peanuts; and others. The reasons for including peanuts are their high percentage of protein and the fact that in finely divided form they are used as sandwich filling. Other nuts are rich in protein but are at present seldom used in the child's diet in sufficient quantities to make it necessary to enumerate them here.

*Group 2. The cereal or starchy foods.*—Breads, cereal mushes, ready-to-eat cereal breakfast foods, rice, macaroni, tapioca, and others.

*Group 3. The fatty foods.*—Butter, cream, salad oils, bacon, and others.

*Group 4. Vegetables and fruits.*—Here some confusion may arise because the term "vegetable" is sometimes used to mean all foods of plant origin and in this sense would include cereal, dried beans, and other foods which have been classified elsewhere. As here used it applies only to those which are used as side dishes with meat or as salads and in similar ways—potatoes, greens, lettuce, celery, green peas and beans, carrots, asparagus, and others. Under this heading come also all cooked or raw fruits, with the exception of those to which much sugar has been added (preserved or candied fruits, marmalades, and others) and dried fruits in which the percentage of sugar is high because most of the water has been driven off. Such sweet fruits are more properly classed under group 5.

*Group 5. Simple sweets.*—Cakes and cookies which contain little fat; cane sugar; plain candies; maple sugar; sweet chocolate; jellies; preserved fruits; jams; marmalades; honey, molasses, and other sirups; dried figs, dates, raisins, and other dried fruits and similar foods are members of this group.

If, as a general rule, each of the above groups is represented, the diet is likely to contain all the important nutrients—protein, fat, starch, sugar, mineral matters, and growth-stimulating substances—in reasonably correct proportions, and to have an energy value sufficient for the child's needs. If all groups are represented no one kind of foods is likely to be used in excess.

The food materials which are regularly used in the household are so many and so varied that they can not, of course, be perfectly classified under a few heads. It would be difficult, for example, to say where dried beans belong, for they have much protein and also much starch. Mutton would naturally come under the protein-rich and also under the fat foods. In spite of such difficulties, there are many advantages about such a grouping system as that mentioned above. One is, that it leads the mother or housekeeper to think of the special value of each of the groups and prevents her from omitting representatives of any of them from her bills of fare for any long period. It is likely to prevent her, for example, from making up a lunch which consists only of starchy foods and sweets (bread-stuffs and cake), as so many lunches now do.

It should prevent her also from serving meat and eggs, or meat, eggs, and milk at the same meal, with no fresh vegetable or fruit. Again, it prevents the omission of members of one group without some very good reason. In general, economy is most likely to be necessary in the protein-rich foods and in the fruits and vegetables, for these are usually high priced. Among the first mentioned are such foods as dried beans, peas, cowpeas, peanuts, walnuts, and pecans, as well as eggs, milk, cheese, and flesh foods; and often, though by no means in all cases, the vegetable foods in the group are cheaper. To learn, therefore, to prepare attractively the lower-priced members of the group is far better than to omit the group entirely in order to save money. The same may be said of fruits and vegetables, which could be raised in the home garden more often than they are, or gathered in the woods by children as a school exercise.

A meal in which all of the important kinds of food are represented tends to keep the child in good condition and to give him good habits of eating. The liking for a large range of foods is desirable from the standpoint of diet and also of manners, for it helps to prevent a person from becoming a disagreeable table companion—one who is

"fussy" about his food. Meals that are carefully planned help also to give the child some little idea of what those who know most about foods have in mind when they speak of a possible "balanced"—or better, a "rightly chosen"—ration. With children it is far more important to suggest the value of such a ration by the character of the meals given to them than to try to tell them what it is or to what extent it has been worked out.

### THE NOON MEAL AT HOME.

There is no reason why the ordinary family dinner should not be suitable for school children or served in a way that adapts it to their needs. The usual first course of meat and vegetables contains nothing, except the meat, which can not be given even to the youngest children. The vegetables, providing they are carefully prepared by simple methods, are specially needed and can often be made attractive to children by being served with a little meat gravy. As a substitute for the meat itself, milk can be provided in the case of the younger children. These articles, with the bread and butter, provide most of the food needed.

The dessert course is suitable for children as well as for grown people unless it consists of rich pastries or puddings. The latter are not considered wholesome for children, if for no other reason than that they are likely to lead to overeating. Such desserts as fruit, fresh or cooked, with cake; cereals with milk or cream, and sugar; custards and custard puddings; gelatin dishes; simple ice cream; water ices; and other simple desserts may be given.

Whether or not the family meal is healthful for children depends not only on the food materials selected, but also on the way in which they are cooked. Simple methods are to be preferred from the standpoint of health as well as from that of the housekeeper's time. All dishes that are likely to contain overheated and scorched fats, such as foods carelessly fried in a pan in a small amount of fat, should be avoided. Deep-fat frying is open to fewer objections since, if properly done, foods will absorb little fat and the fat will not scorch. Vegetables cooked in water or in their own juices and seasoned with salt and a little butter or cream, are easier to prepare than those that are served with white sauce, scalloped, or cooked in other elaborate ways.

What is said above applies equally to all meals. There is, however, one special precaution that applies to the noon meal when it is hurried. This refers to tough, hard foods that are likely to escape proper mastication. It is a mistake to think that the foods given to children must always be soft or finely divided, for children's teeth need exercise quite as much as their muscles do. When time for eat-

ing is limited, however, it is well to omit foods that are difficult to chew, and in extreme cases it may be necessary to serve only soft or finely divided foods—sandwiches made from crustless bread with finely chopped fillings, for example. Before resorting to this, however, it is well to make sure that the time for eating and for insistence on good table manners is not unnecessarily cut short. The advantage of putting the meal on the table promptly and of having foods served in individual portions, or at least ready to eat when they are brought to the table, should be kept in mind. To have the meat already sliced and the dessert in cups instead of in one large dish from which individual portions must be served, and to follow the same general plan with other foods may change a hurried meal into one at which there is plenty of time for attention to details essential to health and good manners.

If special lunches, different from those prepared for the family in general, are to be given to school children, the following are suggested as bills of fare. They are only typical and many others might be given which would be just as good.

#### **SUGGESTED BILLS OF FARE FOR THE HOME LUNCH.**

1. Eggs, boiled, coddled, poached, or scrambled; bread and butter; spinach or other greens; cake.
2. Beef stew with vegetables; crisp, thin tea biscuits; honey.
3. Dried bean or pea purée; toast; baked apple; cookies.
4. Vegetable-milk soup; zwieback; rice with maple sugar and butter or with milk or cream.
5. Potato chowder; crackers; jelly sandwiches.
6. Cold meat; creamed potatoes; peas; bread and butter; frozen custard or plain ice cream and plain cake.
7. Lamb chop; baked potatoes; bread and butter; sliced mixed fruits; cookies.
8. Baked omelet with spinach, kale, or other greens; bread and butter; apple sauce; cake.
9. Milk toast; string beans; stewed fruit; cake.
10. Boiled potatoes; codfish gravy; bread and butter; lettuce; custard.

#### **THE BASKET LUNCH.**

The basket lunch is harder to plan and also to prepare than the lunch at home. To begin with, there are many foods which can not be included in it, either because they are not good cold or because they can not be conveniently packed or easily carried. This leaves fewer foods to choose from, and so extra care is necessary to prevent sameness. Extra care is needed, too, in the preparation of foods that must be packed in small compass and kept for several hours before being eaten and that must very often be carried over dusty roads.

On the other hand, the number of foods that can be easily carried has been enlarged of late by the possibility of using paraffin paper and parchment paper, in which moist foods can be wrapped so as to prevent them from sticking to other foods. Paper cups, jelly glasses, and so on, are also a help, for in them sliced raw fruits, stewed fruits, custards, cottage cheese, and other half-solid foods can be carried.

The quality of the bread used in the basket lunch is especially important because it is commonly served in the form of sandwiches and is, therefore, to be considered not only as a food in itself but also as a means of keeping other much-needed foods in good and appetizing condition, or of serving them in attractive ways.

Variety in breads, too, is more important at this than at other meals because of the danger of monotony. Wheat bread, whole-wheat bread, corn, rye, or oatmeal breads; nut, raisin, and date breads; beaten biscuit, rolls, crisp baking powder biscuit, or soda biscuit, and toast, zwieback, and crackers may be used in turn to give variety. Rolls hollowed out can be made to hold a large amount of sandwich filling, which is an advantage at times.

#### PACKING THE LUNCH.

Many kinds of lunch boxes, pails, and baskets are now on the market. The chief advantage of most boxes and pails is that they are made of metal and can, therefore, be easily cleaned and scalded to keep them in safe condition. Some boxes have the advantage over pails that they can be folded when empty and strapped with the school books. Baskets are ventilated and for this reason suitable for carrying moist foods which are likely to spoil. There is no reason, however, why small holes can not be punched in metal boxes or pails to let in the air. Baskets can, of course, be washed or scalded, but not so easily as metal containers, and they should be frequently cleansed. There should, in fact, be no part of any food container that can not be cleaned. For this reason the simplest boxes and baskets are often better than the more elaborate ones with compartments in which to keep dishes, knives, forks, and spoons. With the increase in automobile travel, well-constructed boxes and baskets which can be easily cleaned have come on the market with compartments for keeping food hot or cold and for holding liquids. These are, of course, suitable only for children who ride back and forth, and particularly suitable where several lunches are put up in one household.

The precautions which must be taken to keep foods clean and safe differ with circumstances. In dusty seasons they should be wrapped particularly well. In hot weather the use of soft, moist foods in which molds and bacteria are most likely to grow rapidly should be

avoided. Although chopped meat moistened with a dressing of some kind makes a good sandwich filling, such foods are less desirable in hot weather than slices of meat, peanut butter, or other foods less liable to spoil.

Paper napkins or the somewhat heavier paper towels of much the same size are very useful for packing lunches, and, like paraffin and parchment paper, may now be obtained at a low price, particularly if bought in rather large quantities. If no provision is made in the school for serving lunches, an extra napkin, either of paper or cloth, should be put in the basket, to be spread over the school desk when the lunch is eaten. Napkins can be made out of cotton crêpe at a cost of a very few cents each. The crêpe may be bought by the yard, and should be cut into squares and fringed. Such napkins have the advantage of not needing to be ironed.

In packing the lunch basket put at the bottom the things least likely to crush, and wrap the sandwiches, etc., into neat parcels, not all in one. Paper cups; jelly tumblers with covers, which can now be bought in several sizes; bottles with screw tops, such as those in which candy and some other foods are sold; and small jars such as those in which some goods are sold by druggists, can all be used for packing jellies, jams, and honey, as well as the foods mentioned above. When clean and in good condition, empty receptacles of this kind can be saved for use in the lunch basket.

A few bills of fare for basket lunches follow, which may help in deciding what is satisfactory for the purpose. Many others equally good could be suggested.

#### **SUGGESTED BILLS OF FARE FOR THE BASKET LUNCH.**

1. Sandwiches with sliced tender meat for filling; baked apple, cookies or a few lumps of sugar.
2. Slices of meat loaf or bean loaf; bread and butter sandwiches; stewed fruit; small frosted cake.
3. Crisp rolls, hollowed out and filled with chopped meat or fish, moistened and seasoned, or mixed with salad dressing; orange, apple, a mixture of sliced fruits, or berries; cake.
4. Lettuce or celery sandwiches; cup custard; jelly sandwiches.
5. Cottage cheese and chopped green-pepper sandwiches or a pot of cream cheese with bread-and-butter sandwiches; peanut sandwiches; fruit; cake.
6. Hard-boiled eggs; crisp baking-powder biscuits; celery or radishes; brown-sugar or maple-sugar sandwiches.
7. Bottle of milk; thin corn bread and butter; dates; apple.
8. Raisin or nut bread with butter; cheese; orange; maple sugar.
9. Baked bean and lettuce sandwiches; apple sauce; sweet chocolate.

#### **LUNCHES PARTLY OR WHOLLY PREPARED AT SCHOOL.**

The basket lunch must usually be prepared at a time when the housekeeper is very busy. In places where there are shops near the



school, therefore, children are sometimes given pennies with which to buy food at noon. They like this, of course, for it is a pleasure to make their own selections and they are glad to be relieved of carrying baskets. If they could choose wisely there would be no objection to this plan and it might even be made good training in handling money and keeping accounts. In practice, however, it is found that the money is often spent in unclean places and for unwholesome foods; pickles and pies, or, at best, starchy foods and sweets are likely to make up the bill of fare, and in this way the good effects of careful feeding at home are likely to be overcome. In many places, therefore, the schools are beginning to serve noon lunches, or one or two dishes which can be eaten with food brought from home.

Mothers are interesting themselves in this work not only because of its effect upon the health of their children but also because of its relation to education for home making. In their own homes they try to serve wholesome food and also to train their children to good habits in eating. They realize, however, that the meal at school is in some ways a better opportunity for training than those served at home. Unlike the other meals of the child's day, it is eaten during the hours which are set apart for education. The child's mind is, therefore, in a receptive condition, and every precaution which is taken to adapt the lunch to his physical and mental needs is likely to teach a lesson in food and nutrition, silently, to be sure, but effectively. Mothers recognize, therefore, that the lunch at school may be of assistance to them in one of their special tasks. They are recognizing, too, that the preparation and serving of lunches at school may improve the quality of teaching in home economics. Instruction in cookery as an art is, of course, most successfully given where there is a large supply of food materials and of utensils to work with and where the work itself is done with some useful and practical purpose in view. The lunch at school may, therefore, be considered a means of strengthening the courses in cookery and allied subjects. In many places it has already been introduced and is proving valuable in many ways.

It is evident from what has been said about foods in general that there is no reason why suitable lunches for children should not be supplied, even in places which serve only 5 out of 21 weekly meals, and which for that reason can not afford elaborate cooking apparatus. There are few localities where good bread can not be purchased either from public bakeries or private housekeepers. The special dishes needed to provide for "tissue building" may well be meat and vegetable stews, cocoa, milk soups or chowders, or purées of dried beans or peas, or other dishes of a similar character,

which require no oven for their preparation and only the simplest cooking equipment. Though these dishes are especially suitable because they are served hot, sandwiches with fillings of meat or meat substitutes like those mentioned in connection with the basket lunch, are by no means out of the question, even where cooking facilities are limited. It should be possible also to sell the children milk to drink, though, if this is done, the greatest watchfulness is required on the part not only of those in charge of the lunch room, but also of health officers.

The amount of protein offered for a given sum in the milk dishes mentioned above may be increased by the use of skim milk, which, as a matter of fact, has slightly more protein and mineral matter, volume for volume, than whole milk. A soup made with skim milk will contain, of course, more of these nutrients than one made with whole milk and water, half and half. However, the fact should always be kept in mind that skim milk has been handled more than whole milk, and that for this reason it is more likely to have become contaminated. Extra precautions are therefore necessary when it is used. Clean skim milk ought to be easily and cheaply obtained in country schools near farms where good cream is sold.

Fruits and raw vegetables are permissible wherever there is a good supply of water in which to wash them and care is taken to do this (see p. 9). Sweets are, of course, the easiest of all foods to obtain, since they are manufactured on a large scale and very commonly sold.

#### SIMPLE BILLS OF FARE FOR SCHOOL USE.

Some sample bills of fare follow. Many others equally good could be suggested.

1. Vegetable-milk soup; crackers; rolls; fruit; plain cake.
2. Meat and vegetable stew; bread and butter; sweet chocolate.
3. Boiled custard; lettuce sandwiches; fruit; cookies.
4. Dried codfish chowder; crackers; fruit; maple-sugar sandwiches.

However the school lunch is prepared, it will meet the needs of children who wish to bring part of their lunches if it contains those foods which are most difficult to carry. It is an easy matter to carry bread and butter and sweets. It is the liquid foods like milk and such foods as cooked fruits and soft fruits like berries which, though valuable, contain very little nourishment in comparison with their bulk, that cause most trouble. It happens, however, that these foods which are most likely to be needed in connection with what is brought from home are among those which must be handled with the greatest care. For this reason schools are beginning to feel responsible even for the children who buy part of their lunches only.

In the above bills of fare the first item and the fruit can easily be served by the school, and the others can be brought in the lunch basket. These bills of fare can therefore be used by those who bring part of their lunch. Where there is an oven and abundant cooking facilities the bills of fare for simple lunches prepared wholly or partly at school, on page 13, may be followed at school as well as at home.

#### LUNCHES SERVED BY THE SCHOOL.

While the carrying of lunches is still by far the most common practice, taking country and town together, there are few cases in which it is not thought desirable for the school to share with the home the responsibility for the noonday meal. In some places the task for the school may be hardly more than that of providing clean and safe places for lunch baskets, where the food will not be likely to become dirty or to spoil. In others it may be practicable to provide by one means or another a hot dish with which to supplement foods brought from home. In still others, particularly where large attendance and many teachers and other workers make subdivision of labor a comparatively easy matter, it may be possible for the school to establish and maintain lunch rooms.

#### COSTS.

Whenever the matter of school lunches is under discussion in a community the cost must be carefully counted. Experience in rural as well as city schools has shown that expenses may be classified under the four heads: Equipment, food materials, service or hired help, and supervision. In a matter of this kind, which, from the housekeeper's standpoint, is closely related to her own problems of nutrition, the question naturally arises, What part of the expense should the school be expected to meet? It is almost universally agreed that the cost of the food materials should be covered by the sale of food and that it can be if a charge of a few cents is made for each dish. The equipment for the lunch room is usually paid for by the school board or by some organization of parents and patrons formed for the purpose of cooperation with the school. Sometimes pupils themselves raise the necessary money by means of entertainments given in the school. The cost of upkeep and new utensils, which is not often large, can usually be met from the profits on the sale of food. This leaves only the two items of service and supervision.

Service, as a rule, is reduced to a minimum, even in large city schools. Pupils are provided with trays and foods are so placed on a counter or table that they can wait on themselves. In some schools they are expected also to return the soiled dishes to an attendant. In some schools where cooking is taught the amount of hired

help is still further reduced, for the members of the cooking classes prepare and serve the lunches under the direction of the teacher as part of their class work.

The supervision of lunches is, under all circumstances, a most important matter, which bears vitally upon the problem of health in the home, for upon it depends the character of the foods selected and the cleanliness of the methods by which they are prepared and served. In this connection the report of a successful experiment in school feeding in a large city says:

The school lunch differs from the street lunch [bought at pushcarts or small shops] not only in the quantity and quality of food which children get, but also in the ideas about food which they get. Every time a child buys food he gets with it an idea about food. On the streets he gets an inferior product and a harmful idea and a low standard of food quality and care; in the school he gets a wholesome product and, if properly planned, a helpful idea about food and its care.

Supervision aims to insure this educational value for the school lunch, as well as to guarantee the wholesomeness of the lunch itself. Any means which will give children wholesome and helpful food standards are worth trying, and expense incident to such a plan may properly be charged against education and met by the public treasury.

In large cities a trained supervisor is often employed for all the lunch rooms connected with the school system. In smaller places it is customary for the teacher of domestic science to supervise the school lunch. Where the importance of the task is recognized and due allowance is made for it in planning the program of the teacher, there is no objection to this practice. On the other hand, in schools where this arrangement is adopted there is the best opportunity for making the cooking classes and the lunch room mutually helpful. Even the teacher of general branches is considered better prepared for her work if she knows something about the hygiene of foods and is prepared to supervise a lunch, as the introduction into teachers' training schools of courses in home economics testifies.

#### **SPECIAL PROBLEMS OF THE RURAL SCHOOL LUNCH.**

It is in the small country school with only one teacher that the midday meal presents the most difficult problems. The common custom is still for the pupils to bring their lunches, but there is a growing tendency to try the experiment of preparing part of the meal at school and of allowing time for serving it carefully. If rightly handled, the meal, even under the unusual difficulties presented in the rural school, may offer the most favorable of all opportunities to inculcate habits of cleanliness and to teach sanitation and simple cookery. The situation, however, will require a teacher of ingenuity and of enthusiasm for her work. The simplest of equip-

ments includes a large kettle suitable to be used on the stove which heats the schoolhouse, measuring cup and spoons, paring knife, mixing spoon, dish pans, and towels. It will usually be possible for the boys to make a set of shelves for the dishes, using box lumber if no other is available, and for the girls to make curtains or other coverings for the protection of the dishes from dust. The pupils will, as a rule, be found willing to bring plates, cups, bowls, and spoons from home, if this is necessary in order to keep down expenses. A fireless cooker can easily be made by the pupils as a class exercise.<sup>1</sup> In this a hot dish for lunch can be prepared before school. The fireless cooker is convenient for meat stews, meat and bean soups, cereal mushes, and many other dishes which require long cooking.

The recipes for the dishes cooked for lunch may be given to the older girls in school, discussed in class, and tried at home. The special dish for the day, which in winter is usually hot and in summer more often cold, can be prepared and served at noon by the girls in turn, working in groups. It will often be necessary to serve the food to the children at their seats, a practice which is not especially objectionable if the schoolhouse is clean and well ventilated and the desks are carefully cleaned before meals, as suggested elsewhere, and the building thoroughly screened to keep out flies, which are always dangerous around food, since they can convey to it the bacteria which cause intestinal and other diseases. At seasons when there are no flies and on days when the weather is favorable it is a pleasant change to serve the lunch out of doors. Clean hands should always be insisted upon, as well as clean spoons, dishes, etc., and individual drinking cups. Furthermore, children should be taught not to drink out of each other's cups or glasses or to use each other's spoons or forks.

The question of good food and a safe water supply can not be separated. Besides being used for drinking, the water at the schoolhouse is used for washing the hands, and if any part of the lunch is prepared there it is used in cooking and in washing dishes, and if it has in it any of the tiny forms of life which carry disease the pupils may be infected by using it in any of these ways. In schools in cities which have a good water system there is, of course, less danger than in the country, where dependence must often be placed on surface wells. When that is the case, too great precautions to provide pure, safe water either at the school or on the farm can not be taken. When there is any question of its purity, all that is used for drinking, cooking, and washing should be boiled.

It is seldom desirable to prepare more than one dish a day in a small school, and this should, for the sake of variety, differ from day to day. The others can be brought from home. Or ready-to-eat

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<sup>1</sup> U. S. Dept. Agr., Office Expt. Stas. Syllabus 15 (1914).

foods (bread, crackers, fruit, or cakes and cookies) can be bought to round out the meal, some one in the neighborhood being usually ready to make such foods for sale if there is no shop where they can be obtained. The choice of the dish to be cooked should be determined partly by what it is possible to do in the way of cooking at the school, partly by what purchased or home-grown food is available, and what the school garden or neighboring fields or woods afford, and partly by what the teacher has learned from experience is needed to go with the foods brought from home. The noonday meal as a whole will then be appetizing and will provide all the needed nutrients as they are now understood.

### A FEW RECIPES FOR SCHOOL-LUNCH DISHES.

Most housekeepers have collections of recipes for dishes of all kinds, but probably few have attempted to compile lists of dishes suitable for school lunches. A few such recipes are therefore given here, which may be suggestive.

#### MILK SOUPS.

The ingredients of milk soups may be grouped under four heads: (1) A liquid; (2) a starchy substance used for thickening; (3) a fatty substance; and (4) flavoring. The liquid may be milk, either whole or skim, or a mixture of two or more of the following in any proportion: Meat stock, water, cream, vegetable juice, including pulp. The starchy substance may be flour, cornstarch, or potato starch. The proportions are usually three-fourths of a level tablespoon of flour and an equal amount of butter to each cup of liquid. If starch is substituted for flour, one-half tablespoon to a cup will usually be found sufficient. An interesting school exercise may be arranged by having students make potato starch and use it for thickening these soups or in other ways.

The following recipes for soup and chowder will serve six children generously.

#### CREAM OF PEA SOUP.

1 can peas or 1 quart fresh peas.	2 tablespoons flour.
1 pint milk.	1 teaspoon salt.
2 tablespoons butter.	$\frac{1}{4}$ teaspoon pepper.

Heat the peas in their own liquor, or cook them in boiling, salted water until tender. Drain off the liquid and rub the peas through a strainer. Scald the milk and add to it the butter and flour rubbed to a smooth paste. Cook 1 minute, add the peas, salt, and pepper. Boil for a few minutes and serve at once.

## CREAM OF TOMATO SOUP.

1 pint or 1 can tomatoes.	1 quart milk.
2 tablespoons butter.	Sprig parsley.
1 tablespoon flour.	$\frac{1}{4}$ teaspoon white pepper.
1 teaspoon sugar.	$\frac{1}{2}$ teaspoon soda.
1 teaspoon salt.	

Cook the tomatoes slowly with the flavorings for 10 minutes and rub through a strainer. Scald the milk, thicken with the flour and butter rubbed to a paste; reheat the tomatoes and add the soda; combine with the milk and serve at once.

## QUICK TOMATO SOUP.

1 pint or 1 can tomatoes.	1 teaspoon salt.
1 quart water.	$\frac{1}{4}$ teaspoon pepper.
4 tablespoons butter.	1 tablespoon chopped onions.
4 tablespoons flour.	

Mix the water, tomato, and seasonings. Heat to the boiling point; add butter and flour rubbed to a paste and cook a few minutes. Strain and serve.

## CHOWDERS.

Fish or clam chowders and oyster stews, though common and suitable in regions where fresh sea food is abundant, would not be readily obtainable dishes for school lunches in many localities. There are, however, certain similar dishes which can easily be prepared in the school and which are attractive and wholesome. The ingredients are milk, whole or skim; a fatty substance, which is usually salt pork, though butter may be used; potatoes or crackers, often both; and, in addition to these, one of the following: Fish, which may be either fresh or salt; green corn, fresh or canned; parsnips, vegetable oysters, kohl-rabi, or celery. A chowder consisting mainly of milk, potatoes, and crackers, and flavored with a little salt codfish is perhaps the most economical of these dishes.

## SALT-CODFISH CHOWDER.

1½ ounces or 1½ cubic inches fat salt pork.	1 quart milk.
1 tablespoon chopped onion.	$\frac{1}{2}$ pound salt codfish, or just enough to flavor.
3 cups potatoes, cut into small pieces.	$\frac{1}{4}$ pound crackers.

Break the codfish into small pieces, soak it in lukewarm water until it is soft and the salt has been removed. Cut the pork into small pieces and cook it until a delicate brown, adding the onions during the last part of the cooking. To the pork and onions add the potatoes; cover with water and boil them until tender. Add the milk and fish and reheat. Add the crackers shortly before the chowder is served.

## CORN CHOWDER.

The same general directions can be followed for making corn chowder as for making salt-codfish chowder. One can of corn or 1 pint of fresh corn is sufficient for the amount given above. If fresh corn is used, it should be cooked with the potatoes.

## VEGETABLE CHOWDER.

Any one, or a combination of two or more of the vegetables mentioned on page 22, may be used as suggested for fresh corn (i. e., cooked with the potatoes) in making a chowder.

## POTATO CHOWDER.

6 medium-sized potatoes, sliced.	1 tablespoon flour.
$\frac{1}{4}$ pound salt pork, cut into dice.	1 pint milk.
1 tablespoon chopped onion.	1 pint water.
1 tablespoon butter.	1 teaspoon salt.

Fry the pork and onions together until both are a delicate brown. Put a layer of the sliced potatoes into a kettle, then a layer of onions and pork, and sprinkle with salt. Repeat this until those materials are all used. Pour over them the grease from the pan in which the pork and onions were fried and add the water. Cover and simmer 20 minutes, or until the potatoes are tender. Thicken the milk with the flour mixed with the butter and pour it over the potatoes. Stir carefully, so as not to break the potatoes. Serve very hot.

## BROWN STEW.

For this dish the cheaper and less tender cuts of beef, such as the rump and round, can be used. Remove the meat from the bone and cut it into small pieces. Dredge with flour and cook in a small amount of fat until it is well browned. Add hot water, about 1 quart to every pound of meat; season with salt, pepper, and onion; and cook slowly for an hour. The meat should be very tender and the gravy thick. Tomato and other vegetables may be added while the stew is cooking. An allowance of 1 pound of round steak for 10 children will, according to a general estimate, equal in protein value a glass of milk for each.

## SOUPS MADE FROM DRIED BEANS, PEAS, OR COWPEAS.

There are a great variety of soups of high nutritive value that can be made from dried navy beans, black beans, lentils, cowpeas, or other legumes. The vegetables should be first soaked in water for several hours, overnight being usually the most convenient time. When they are thoroughly soaked, the water should be poured off and fresh water added. They should then be cooked until tender, with a little onion, celery, or other highly flavored vegetable, and salt, then put through a strainer to remove the skins. The juice and pulp should then be either diluted or boiled down to the proper consistency for a soup and should be bound with a mixture of flour and butter, as milk



soups are. An ounce of dried beans is very nearly equal in protein value to a glass of milk, though the protein is not so completely digested.

#### GREENS.

Greens should be thoroughly washed in several waters. A good rule to follow in washing and also in removing cooked greens from the water in which they have been cooked is to lift the greens out rather than to pour the water off. When the water is poured off, the sand and grit which have sunk to the bottom of the pan are likely to get on the greens again. To preserve the color of greens add about one-eighth of a teaspoon of soda to each quart of water in which they are cooked; to preserve flavor avoid cooking longer than necessary to make them tender. Remove the greens from the water and season with salt and a little pepper; or reheat with a little fat or butter. The addition of butter, cream, oil, or savory fat to the cooked greens increases nutritive value and also improves flavor.

#### BOILED AND CODDLED EGGS.

The most common way of preparing eggs is by cooking them for three minutes in boiling water. By this process the yolk is left entirely uncooked and the white is more cooked than many people think desirable. A better way is to place the eggs in hot water, remove them from the stove, and allow from six to eight minutes for cooking. Much will depend upon the temperature of the eggs and the amount of water used. In most cases, however, the following method will be found satisfactory: Bring to the boiling point one cup of water for each egg to be cooked, put the eggs into the water, remove from the fire, and cover the pan closely. Leave the eggs in the water for from six to eight minutes. "Hard-boiled" eggs can be prepared in the same way by allowing a longer time.

#### BAKED OMELET WITH GREENS.

1 quart or $\frac{1}{2}$ pound spinach, kale, Swiss chard, or other greens.	$\frac{3}{4}$ cup liquid (milk, cream, water, soup stock, vegetable juice, or a mixture of two or more of these).
$\frac{1}{4}$ cup butter or other fat.	4 eggs.
$\frac{1}{2}$ cup flour.	1 teaspoon lemon juice or vinegar.
1 teaspoon salt.	
$\frac{1}{2}$ teaspoon pepper.	

Wash the greens with great care, boil until tender (which will take 20 to 25 minutes) in the least possible amount of water; drain and chop fine. A meat chopper will be found convenient for the purpose. Melt the butter, add the flour, and cook for about one minute. Add the milk, stirring constantly, and cook until the mixture is smooth and thick. Add the chopped greens and the egg yolks, un-

beaten. Beat the whites of the eggs stiff and add them to the other mixture by the cutting and folding process. Pour into a buttered baking dish and cook in a slow oven for 30 minutes, or until firm and brown. Serve at once.

#### RICE OR MACARONI AND CHEESE.

Boiled rice or macaroni can be heated with enough grated cheese added to flavor it. If preferred, it may then be browned in the oven before serving.

#### BEAN, PEA, OR COWPEA LOAF.<sup>1</sup>

Any of the dried vegetables mentioned in the recipe on page 23 can be made into a loaf. They should be soaked and thoroughly cooked as for the soup, but with less water, and it is well not to add the seasonings until after the vegetables have been put through a sieve. Then chopped celery, green peppers, onions, pimientos, or grated cheese can be added and the mixture browned in the oven. This dish can be served either hot or cold.

#### SAUCES.

There is a great variety of sauces which can be used in the home to serve with meat or vegetables and can also be used in making sandwich fillings. In a general way, they are made like milk soups, excepting that more flour is used. Two tablespoonfuls of flour and 2 tablespoons of butter or other fat are usually allowed for each cup of liquid. This liquid may be water, broth, tomato juice, milk, cream, the water in which vegetables have been cooked, or a combination of two or more of these.

#### TOMATO SAUCE.

1½ cups tomato juice.	1 slice onion.
2 tablespoons flour.	Sprig parsley.
2 tablespoons butter.	½ teaspoon salt.
½ teaspoon pepper.	

Add the seasonings to the tomato juice and simmer until the liquid has been reduced to about 1 cup. Melt the butter in a saucepan, stir in the flour, and when this is smooth add the strained tomato juice. Cook for a few minutes or until smooth and thick. The tomato juice may be used plain, omitting the first cooking with the seasonings.

This will provide a tablespoon for each of 16 people.

#### WHITE SAUCE.

2 tablespoons butter.	½ teaspoon salt.
2 tablespoons flour.	¼ teaspoon pepper.
1 cup milk.	

Melt the butter, stir in the flour, and cook until smooth, but not brown; add the milk slowly and cook until smooth and creamy. Season.

This makes 12 portions of 1 tablespoon each.

<sup>1</sup> U. S. Dept. Agr., Farmers' Bul. 559 (1913).

**SALAD DRESSING.**

Of numerous salad dressings, the following are well suited to school-lunch use. As they are used chiefly for moistening sandwich fillings, it is difficult to give the number of people they will serve.

**OIL AND VINEGAR DRESSING.**

$\frac{1}{2}$ teaspoon salt.		6 tablespoons oil (olive, cotton-seed, peanut, or other).
2 tablespoons vinegar.		
Few grains cayenne.		

Mix the ingredients and beat them until they are well mixed.

**COOKED SALAD DRESSING.**

2 egg yolks.		1 teaspoon salt.
$\frac{3}{4}$ cup milk.		$\frac{3}{4}$ tablespoon flour.
$\frac{1}{4}$ cup vinegar.		1 teaspoon mustard.
$2\frac{1}{2}$ tablespoons butter.		

Mix all the dry ingredients with the egg yolks; beat until light and add the melted butter, cold milk, and hot vinegar. Cook in double boiler until the mixture coats the spoon. If it curdles, place the boiler at once into a pan containing cold water and beat until smooth. One whole egg may be used in place of two yolks.

**MAYONNAISE DRESSING.**

1 egg yolk.		1 cup salad oil (olive, cotton-seed, peanut, or other).
1 teaspoon salt.		
$\frac{1}{2}$ teaspoon mustard.		2 tablespoons lemon juice and
$\frac{1}{8}$ teaspoon cayenne.		vinegar.
1 tablespoon sugar.		

Put the egg yolk into a cold bowl; add the seasonings and mix until smooth; then add the oil, one drop at a time, stirring constantly. As it thickens, thin with vinegar and lemon juice.

**SWEETS.**

Several recipes for simple sweets follow:

**FRUIT AND NUT CONFECTION.**

1 pound figs.		1 pound nut meats.
1 pound dried prunes or seedless raisins.		Confectioners' sugar.

Wash, pick over, and stem the fruits and put them with the nut meats through a meat chopper, and mix thoroughly. Roll out to a thickness of about one-half inch on a board dredged with confectioners' sugar, and cut into small pieces. If this candy is to be kept for some time, the pieces should be separated by means of paraffin paper.

Provides 24 2-ounce portions.

**CANDIED FRUIT PEEL.**

The candied peel of oranges, grapefruit, kumquats, and other citrus fruits make a good sweet which is economical, because it utilizes materials which might otherwise be thrown away. Its preparation makes an interesting school exercise. The skins can be kept in good condition for a long time in salt water,

which makes it possible to wait until a large supply is on hand before candying them. The salt water takes out some of the bitter taste. The skins should be washed in clear water after removal from the salt water, boiled until tender, cut into small pieces, and then boiled in a thick sugar sirup until they are transparent. They should then be lifted from the sirup and allowed to cool in such a way that superfluous sirup will run off. Finally they should be rolled in pulverized or fine granulated sugar.

#### HONEY CAKES.

Simple honey cakes, such as those for which recipes are given in one of our earlier publications,<sup>1</sup> are convenient for use in school lunches, for, because of their unusual keeping qualities, a large supply can be made up at one time. Honey drop cakes and hard honey cake are especially suitable.

#### BOILED CUSTARD.

2 cups hot milk.	Speck salt.
3 egg yolks.	Flavoring.
$\frac{1}{4}$ cup sugar.	

Beat the yolks slightly and add the sugar and salt. Pour the hot milk over this mixture, stirring constantly. Cook in a double boiler, stirring until the mixture thickens and will form a coating on the spoon. Cool and flavor. If the custard curdles, beat with an egg beater.

If the whites of the eggs are to be used, beat them very stiff and add three tablespoons of powdered sugar. Place by spoonfuls on water which is hot but not boiling. Cover the dish. Test occasionally by putting a knife into it; when it is done nothing will stick to the knife. Remove from the water with a wire egg beater or split spoon and place on top of the custard.

#### ECONOMIES IN MEAT, WHEAT, AND SUGAR.

In the present national crisis the American people are asked to make certain changes in their diet for the purpose of saving foods that are especially needed abroad and that can be easily transported. It is very important, however, that these changes should not deprive growing children of anything needed for development.

Fortunately there is no reason why growing children should not be well fed with the foods which are available—particularly if we realize the great value of milk for them and use it accordingly—and the crisis gives an important opportunity to teach them in the home and in school much about food values that will be of service to them in after life.

#### SAVING MEAT.

Milk, the absolutely essential food for children, is one which in its natural state can not easily be transported because it is both perishable and bulky, i. e., contains a large amount of water as compared with nutritive material. Skim milk is even more bulky than whole milk. It is, nevertheless, a very valuable food for many purposes and capable of being used in many ways in the diet. Every pound of it, however, contains about  $14\frac{1}{2}$  ounces of water. The economical use of milk, whole and skim, therefore, depends upon its being

<sup>1</sup> U. S. Dept. Agr., Farmers' Bul. 653 (1915), pp. 17, 20.

used, so far as possible, near the place of its production. In addition to this, skim milk should be used, so far as possible, in institutions, like schools, to which it can be delivered in comparatively large amounts. While it might not be practicable to deliver a gallon of skim milk in quart lots to four families, it might be to deliver it in one place, like a school. The use of skim milk in school lunches is of special significance at present, when not only food materials must be saved, but the cost of transporting them must be reduced. Milk, whether skim or whole, may be used:

1. *As a beverage.*

2. *In making cocoa.* Cocoa prepared with skim milk contains twice as much protein as that made with half whole milk and half water.

3. *In cooking cereals.* Rolled oats cooked in skim milk is palatable even when served without anything on it. It can be easily prepared in school in a fireless cooker. Rice cooked in milk makes a dish which can easily be carried from home and is palatable cold. Either food tends to reduce the amount of bread needed.

4. *In milk soups and chowders.*

Other foods which may be occasionally used to save meat, but which should never be wholly substituted for milk in the diet of children, are peanut butter, fish, eggs, cottage cheese, and other kinds of cheese. All of these can be made into sandwiches.

A liberal use of potatoes may serve to reduce the amount of wheat needed. These may be creamed or may be made into chowder or salad. In either case they can be combined with other vegetables for the sake of securing a variety of flavors. Cooked potatoes can be brought from home and heated in a white sauce in the school.

Except where the use of thin corn pones, Boston brown bread, and some similar dishes is common, the use of corn meal in the school lunch is not very practicable because of the fact that cold corn breads, like johnnycake, are not particularly palatable. There is no reason why corn breads should not be eaten cold if one likes them, but the fact that they are not generally so used has a bearing upon their usefulness for school lunch purposes. Boston brown bread is a sort suitable for using cold and makes excellent sandwiches. Thin crisp corn pones are also liked cold by many and can be used with cream cheese, for instance, for sandwiches, or for "bread and milk" with sweet milk or buttermilk. Recipes for a number of corn breads and for breads in which wheat is partly replaced by other grains can be found in earlier publications of the department.<sup>1</sup> Some corn-meal recipes which will prove useful for school lunch purposes follow. The corn-meal biscuits are good cold. The wafers and cookies can be used like similar foods made from wheat.

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<sup>1</sup> U. S. Dept. Agr., Farmers' Buls. 565 and 807; States Relations Service Doc. No. 64.

## CORN-MEAL BISCUITS.

1½ cups corn meal.	1 teaspoon salt.
2 cups sour milk.	2 eggs.
1 teaspoon soda.	1 tablespoon water.

Heat together the corn meal, sour milk, and salt in a double boiler for 10 minutes. When cool, add the well-beaten eggs and the soda dissolved in the water. Bake in small pans that will give a large amount of crust. The kind used for "finger" rolls is best.

## CORN-MEAL WAFERS.

½ cup corn meal.	½ teaspoon salt.
½ cup rye flour.	3 tablespoons milk (about).
1 tablespoon fat.	

Sift the flour, meal, and salt together. Cut in the fat and add the liquid. The dough should be stiff enough to be rolled into a very thin sheet. Cut into diamonds or other shapes. Bake quickly in a hot oven.

For the sake of variety sprinkle a little grated cheese and paprika over the top after the dough is rolled thin. Cut into strips, bake, and use like crackers. This recipe makes about 60 wafers 2 inches by 2 inches.

## CORN-MEAL COOKIES.

½ cup fat.	2 cups corn meal.
½ cup corn sirup.	½ teaspoon soda.
½ cup molasses.	1 cup flour.
1 egg.	1 teaspoon cinnamon.
6 tablespoons sour milk.	

Combine the melted fat, sirup, molasses, beaten egg, and sour milk. Sift together the corn meal, soda, and flour. Add the liquid ingredients to the dry ingredients. Drop from a teaspoon into a greased pan and bake 15 minutes in a moderate oven. This recipe makes 55 to 60 cookies 2 inches in diameter.

All of the various mixed breads for which recipes have been given in previous publications<sup>1</sup> can be used in the school lunch.

## SAVING SUGAR.

Satisfactory sweets can be made without wheat flour or sugar. Oatmeal is useful in place of wheat flour for such purposes, and honey, sirup, and dried sweet fruits are good to replace sugar.

## OATMEAL COOKIES.

1 egg.	1 cup rolled oats.
½ cup honey.	½ teaspoon salt.

Beat the egg until light and add the other ingredients. Drop by spoonfuls on a thoroughly greased pan. Bake in a moderate oven.

Honey drop cakes, for which a recipe is given in a previous bulletin of this office,<sup>2</sup> are sweetened with honey and raisins and are also very good.

<sup>1</sup> U. S. Dept. Agr., Farmers' Buls. 565 and 807; States Relations Service Doc. No. 64.

<sup>2</sup> U. S. Dept. Agr., Farmers' Bul. 653, p. 20.

In the present emergency sweets made from chopped dried fruits, for which the recipe is given on page 26, are especially useful. Variation may be secured by making the fruit paste with equal parts of chopped figs, raisins, and dates, and omitting the nuts.

**SUGGESTED BILLS OF FARE DESIGNED TO SAVE MEAT, WHEAT, AND SUGAR.**

**FOR THE LUNCH BASKET.**

Cottage cheese, rye bread, celery, and honey drop cakes.

Egg and lettuce sandwiches made of oatmeal bread, corn-meal cakes, and fruit.

Rice cooked in skim milk and molded in cups, corn-meal wafers, and baked or stewed apples.

**LUNCHES PREPARED PARTLY OR ENTIRELY AT SCHOOL.**

Creamed potatoes, corn biscuits, and fruit paste made from chopped figs, dates, and raisins.

Salt codfish chowder, corn-meal wafers, orange or sliced oranges, and oatmeal cookies.

Spoon bread, cocoa, raisin sandwiches, and an apple.

Bean or pea soup, crackers, lettuce sandwich made with corn-meal and wheat yeast bread, and stewed figs.

**SUMMARY.**

The problem of planning, preparing, and serving the midday meal for the child in school will vary with the region, the location and equipment of the school, and many other factors. No general discussion can give detailed advice suited to all different conditions.

In the foregoing pages matters of fundamental interest are considered. The child's dietetic needs are outlined. Food combinations are suggested, which will be of use in schoolroom menu making, and directions are given for making a number of dishes which may be taken as examples of those which can be prepared at school. Such dishes should be supplemented by bread, butter, fruit or vegetables, and sweets, which can be brought from home or prepared at the school, if this is more convenient. Reasons are given for the recommendations that the lunch at school receive thought and attention at all times and that, wherever children are unable to go home at noon, the school lunch form a definite part of the educational program.

An adequately supervised lunch at school, whether prepared there or at home, or partly in the one place and partly in the other, is conceded to contribute to the child's health and to his readiness to learn. Furthermore, it may be made to enrich the content of education by directing attention to the importance of food problems.

**PUBLICATIONS BY THE U. S. DEPARTMENT OF AGRICULTURE OF  
INTEREST IN CONNECTION WITH THIS BULLETIN.**

- Farmers' Bul. 85, Fish as food.  
Farmers' Bul. 121, Beans, peas, and other legumes as food.  
Farmers' Bul. 249, Cereal breakfast foods.  
Farmers' Bul. 256, Preparation of vegetables for the table.  
Farmers' Bul. 293, Use of fruit as food.  
Farmers' Bul. 295, Potatoes and other root crops used as food.  
Farmers' Bul. 298, Food value of corn and corn products.  
Farmers' Bul. 363, The use of milk as food.  
Farmers' Bul. 375, Care of food in the home.  
Farmers' Bul. 391, Economical use of meat in the home.  
Farmers' Bul. 413, The care of milk and its use in the home.  
Farmers' Bul. 487, Cheese and its economical uses in the diet.  
Farmers' Bul. 526, Mutton and its value in the diet.  
Farmers' Bul. 535, Sugar and its value as food.  
Farmers' Bul. 559, Use of corn, Kafir corn, and cowpeas in the home.  
Farmers' Bul. 565, Cornmeal as a food and ways of using it.  
Farmers' Bul. 653, Honey and its uses in the home.  
Farmers' Bul. 717, Food for young children.  
Farmers' Bul. 751, Peanut oil.  
Farmers' Bul. 796, Some common edible and poisonous mushrooms.  
Farmers' Bul. 807, Bread and bread making.  
Farmers' Bul. 808, How to select foods. I. What the body needs.  
Farmers' Bul. 817, How to select foods. II. Cereal foods.  
Farmers' Bul. 839, Home canning by the one-period cold-pack method.  
Farmers' Bul. 841, Drying fruits and vegetables in the home.  
Farmers' Bul. 853, Home canning of fruits and vegetables.  
Farmers' Bul. 871, Fresh fruits and vegetables as conservers of other staple foods.

